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Asma Usman

Aga Khan University, [asma.usman@aku.edu](mailto:asma.usman@aku.edu)

Swaleha Tariq Bhombal

Aga Khan University, [swaleha.tariq@aku.edu](mailto:swaleha.tariq@aku.edu)

Ambreen Jawaid

Aga Khan University

Samar Zaki

Aga Khan University, [samar.zaki@aku.edu](mailto:samar.zaki@aku.edu)

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## Energy drinks consumption practices among medical students of a Private sector University of Karachi, Pakistan

Asma Usman, Swaleha Tariq Bhombal, Ambreen Jawaid, Samar Zaki

### Abstract

Consumption of energy drinks has become popular among students and athletes over the past few years. To explore the phenomenon, a cross-sectional survey was conducted through a self-administered pilot-tested questionnaire. Frequency of energy drinks consumption was found to be 121(52%) in a sample of 233 medical students. Red bull was the most common brand consumed 101(43%). The major reasons reported for its usage were to gain/replenish energy by 36(15.4%), and studying for examination by 34(14.6%). Television was reported as the major source of information 153(66%) followed by friends 113(48%). There was a high frequency of energy drinks' consumption among medical students of a private university. There is a strong need to create awareness regarding these drinks, especially among adolescents and teenagers.

**Keywords:** Caffeine, Energy drinks, Knowledge, Students.

### Introduction

Energy drinks are a group of beverages used by consumers to provide an extra boost, promote wakefulness, increase attention span, maintain alertness, and provide cognitive and mood enhancement.<sup>1</sup>

Red Bull, one of the leading brands of energy drinks, was first introduced in Austria in 1987 and in the United States in 1997, and since then the energy drink market has grown tremendously.<sup>1</sup> Currently it is the fastest growing beverage category available in around 140 countries of the world, including Pakistan. Different brands of energy drinks containing caffeine ranging from 80mg to 550mg per can or bottle are available.<sup>2</sup>

Energy drinks' consumption has become very popular among adolescents and young adults, especially students and athletes over the past few years. In a survey of college students in the United States, 51% reported consuming at least one energy drink in the preceding month. The

majority of users consumed them for reduced sleep (67%), to increase energy (65%), and to drink with alcohol while partying (54%).<sup>3</sup>

A study conducted among medical students of Turkey showed 32.6% had consumed energy drink at least once.<sup>4</sup> A study from Dow Medical College, Pakistan, showed that 38.94 % students had increased consumption of caffeine and energy drinks to cope up with stress.<sup>5</sup>

The current study was planned to assess the frequency of energy drinks' consumption among students from a large private-sector medical university in Pakistan and to evaluate students' knowledge and perceptions regarding the drinks.

### Methods and Results

The cross-sectional study was conducted on undergraduate medical students of Aga Khan University (AKU), Karachi, in September 2013.

The sample size was calculated on the basis of a study according to which, the prevalence of energy drinks

**Table-1:** Energy Drinks' Consumption brands and reasons of usage.

Characteristics	Number(Percentage)
<b>Brand consumed</b>	
Red Bull	101(43.4)
Sting	44(15.8)
Monster	7(2.9)
Blue Ox	5(2.0)
Gatorade	5(2.0)
<b>Reasons of usage</b>	
To gain/replenish energy	34(14.6)
To reduce fatigue	24(10.3)
To replace lost body fluids	8(3.4)
For insufficient sleep	15(6.4)
To reduce stress	9(3.9)
Before sports/training	14(6.0)
After sports/training	9(3.9)
While partying	19(8.2)
Loves its flavour	21(9.0)
While studying for Exams	36(15.5)
<b>Others</b>	
Just to try it	22(9.1)
Got it for free	4(1.6)

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Department of Family Medicine, Aga Khan University Hospital, Karachi, Pakistan.

**Correspondence:** Asma Usman. Email: asma.usman@aku.edu

**Table-2:** Knowledge about ingredients regarding energy drinks.

Characteristics	Number (Percentage)
<b>Source of information about energy drinks</b>	
TV	153(65.7)
Internet	33(14.2)
Friends	113(48.5)
Schools/Colleges	35(15)
Clubs	11(4.7)
<b>Awareness of energy drinks ingredients</b>	
Yes	109(46.8)
No	120(51.5)
Missing	4.0(1.7)
<b>Awareness of caffeine as energy drink's ingredient</b>	
Yes	197(84.5)
No	34(14.6)
Missing	2.0(0.9)
<b>Awareness of exact caffeine amount in an energy drink</b>	
Yes	8.0(3.4)
No	220(94.4)
Missing	5(2.1)

among medical students in Dow Medical College, a public-sector teaching hospital of Karachi, was 39%.<sup>5</sup> Using this proportion with 5% bound on error of estimation and 95% level of significance, the sample size came out as 366 subjects. However, the number of medical students enrolled in AKU was 500 so after adjusting for the number of students, the final sample size was 233.

Ethical approval was taken from the institutional committee and after obtaining written informed consent, data was collected through a self-administered questionnaire consisting of socio-demographic characteristics and energy drink consumption practices after piloting it on 5% of the sample size.

The analysis was performed using SPSS 19. Descriptive statistics, including frequencies and percentages, were calculated for demographic variables and energy drinks' consumption patterns, including usage, brands consumed and reasons of usage. Frequencies were also calculated for knowledge variables like sources of information of energy drinks and students' awareness of the ingredients.

Of the 233 subjects, prevalence of energy drinks' consumption was found in 121(51.9%) (95% Confidence Interval [CI]: 45.5%, 58.3%). The mean age of students was  $21.49 \pm 1.692$  years. Of the 121 students consuming energy drinks, 80(66%) were boys and 41(34%) were girls.

Red bull was the most common brand consumed by 101(43%), followed by Sting 44(16%). The major reasons

reported for usage were to gain/replenish energy by 36(15.4%), and studying for examination by 34(14.6%) (Table-1).

Television was reported as the major source of information for 153(66%) followed by friends 113(48%). Awareness regarding energy drinks' ingredients was present in 107(47%) participants. Although 197(85%) knew that caffeine was its ingredient, but only 8(3%) knew the exact amount of caffeine in a single can/bottle (Table-2).

## Discussion

Over the past several decades, consumption of energy drinks has increased dramatically. In our study, a significant proportion of medical students (52%) reported that they have used energy drinks. This was comparable to the prevalence of energy drink usage of 42% in a survey conducted in 4 medical colleges of Karachi in 2012.<sup>6</sup>

Our study showed male preponderance in usage as noted in other studies conducted elsewhere.<sup>7</sup> This could be explained because the public image of many energy drinks revolves around the nexus of sport, masculinity and risk-taking.

Red Bull was the brand mostly consumed by students followed by Sting in our study. This is because these are the two leading brands marketed in Pakistan.

The participants reported a number of reasons for the usage of energy drinks. The major ones were to gain/replenish energy, while studying for examination, and out of curiosity to try it out. Similar reasons of usage are reported in studies done worldwide. A study in a Turkish university showed that the most common reasons for first experimentation with energy drinks were curiosity (51.3%), to enhance physical performance (15%) and to overcome sleepiness (9.2%).<sup>8</sup> A study conducted in medical colleges of Pakistan showed that 43.9% of energy drink users agreed that it alerts the mind, 50% also agreed to the fact that it improves concentration and memory recall, and 42% users agreed that it relieves stress.<sup>6</sup>

This study showed that media messages and information from friends were the main sources of information. This can be explained by the fact that producers of energy drinks usually target young adults who are easily attracted to energy drinks after watching numerous appealing advertisements.<sup>3</sup>

Medical students are assumed to have more knowledge regarding nutrition and health. Awareness regarding energy drinks' ingredients was present in almost half of our participants. Although majority knew that caffeine

was the main ingredient, but only few knew its exact amount in a single can/bottle. A similar study done on university students showed that less than one-third of the study participants knew the ingredients of energy drinks.<sup>9</sup>

There are a few limitations to this study. The data was collected from one private medical university, so it does not represent all medical students of Pakistan. Medical students per se are assumed to have more knowledge regarding nutrition and health. The results may not be generalisable to students of other fields. However, the results from this study do provide important information regarding energy drink consumption habits among medical students.

## Conclusion

There was a high prevalence of energy drinks' consumption among medical students. Media messages and peers had a strong influence on usage of these drinks. There is a strong need to create awareness regarding these drinks, especially among adolescents and teenagers as they are exposed to an ever-increasing and easily accessible energy drinks market.

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